

# **Chapter 15: Water and Wastewater Systems**

**Presenter:**

**Don Ballantyne  
Ballantyne Consulting  
NIST Disaster Resilience Fellow**



# Water is Important to MANY Things

- Personal
  - Drinking
  - Waste disposal
  - Washing
- Hospitals
  - Cooling
  - Laundry
- Communication - cooling



# Water is Important to MANY Things

- Fire suppression
- Restaurants
  - Food preparation
  - Washing dishes
- Hotels – laundry
- Industry
  - Manufacturing processes
  - Cooling





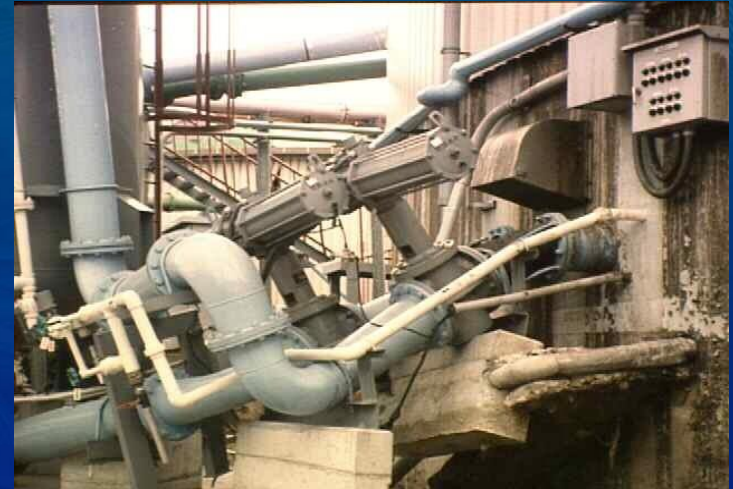
# Operability is Interdependent on other Systems

- Power – pumping, treatment plant operation
- Transportation – emergency response, recovery
- Communication – SCADA, emergency response
- Chemical supply – chlorine



# Recovery is Impacted by:

- Prioritization of needs
  - Finding survivors
  - Critical functions
- Prioritization of resources— where do the backhoes go
- Mutual aid, contractor resource allocation



# Recovery time is critical to maintain resilience and is dependent on:

- Extent of damage
- System redundancy
- Emergency preparedness
- Resources
  - People -
  - Equipment – excavators, cranes .....
  - Materials – pipe repair sections

